

Application No. 10/822,548

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of: Seghatol et al.

Attorney Docket No.: 109880

Application No.: 10/822,548

Confirmation No.: 1792

Examiner: Patrick Neal Butler

Filed: April 12, 2004

Group Art Unit: 1732

For: INTRA-ORAL MICROWAVE POLYMERIZATION METHOD FOR  
DENTISTRY

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REPLY BRIEF UNDER 37 C.F.R. § 41.41

Mail Stop Appeal Brief - Patents

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

This Appeal Reply Brief is presented in response to the Examiner's Answer dated April 3, 2009, with respect to the final rejection of claims 1, 33 and 37 in the above-referenced application. The Appellant respectfully requests reconsideration and reversal of the Examiner's only remaining obviousness rejection.

DATE OF DEPOSIT: May 26, 2009

CERTIFICATE OF ELECTRONIC DEPOSIT: I hereby certify that all paper(s) described herein are being electronically filed with the United States Patent and Trademark Office on the date indicated above and addressed to Mail Stop Appeal Brief - Patents P.O. Box 1450, Alexandria, VA 22313-1450.

Signature: Thomas F. Woods

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**(I) STATUS OF CLAIMS**

Claims 1, 33 and 37 are pending in the application. Claims 2-32, 34-36, and 38-41 have been cancelled. Claims 1, 33 and 37 have been finally rejected and are the subject of this appeal.

Claims 1, 33 and 37 stand rejected for double patenting obviousness in view of claim 10 of commonly owned U.S. Patent No. 6,254,389, for which Appellant has reserved the right to file a terminal disclaimer to overcome when prosecution is remanded to the Examiner.

Claims 1, 33 and 37 stand rejected over, and are copied from, U.S Patent No. 6,605,651 to Stangel et al. Appellant copied and presented these claims in the present application to preserve the opportunity to file a request for interference with this patent once the pending claims are otherwise indicated as allowable. Since the initial filing of this appeal, U.S Patent No. 6,605,651 to Stangel et al. has apparently gone abandoned for failure nonpayment of maintenance fees. As an interference cannot be declared with an abandoned patent, Appellant now reserves the right when prosecution is remanded to the Examiner to submit additional evidence to swear behind the priority date of U.S Patent No. 6,605,651 to Stangel et al. and thereby remove this reference as prior art under 35 U.S.C. § 102(e).

Claims 1, 33 and 37 were rejected in the Final Office Action for double patenting obviousness in view of claim 5 of commonly owned U.S. Patent No. 6,737,619 in view of U.S. Patent No. 3,868,513 to Gonser. In the Examiner's Answer, this grounds for rejection has been withdrawn.

**(2) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

A. Whether claims 1, 33 and 37 are unpatentable under 35 U.S.C. § 103(a) over U.S. Patent No. 5,147,903 (Podszun) in view of U.S. Patent No. 4,873,269 (Nakazato) and U.S. Patent No. 5,421,727 (Stevens).

**(3) ARGUMENT**

The Examiner rejected claims 1, 33 and 37 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,147,903 (Podszun) in view of U.S. Patent No. 4,873,269 (Nakazato) and U.S. Patent No. 5,421,727 (Stevens). Appellants respectfully request reversal of the rejection in view of the prosecution history and arguments on appeal. All three independent claims that are the subject of this appeal are being argued together and will stand or fall collectively.

It is respectfully submitted that nothing in the Examiner's Answer cures the failure in this case of the Examiner to present a *prima facie* case of obviousness. In response to the Appellant's argument that the heat required to cure Podszun's composition is so high that a person of ordinary skill in the art would have no reasonable expectation of success, the Examiner argues that the fact that certain of Podszun's composition could be polymerizable at 50° C would obviate complication of curing at temperatures up to 150° C (Examiner's Answer, pg. 6). Whether the cure temperature is 50° C or 150° C, a person skilled in the art would understand that the parameters required to cure the polymer materials of Podzun are not amenable to intra-oral curing in the manner as taught and claimed by the present invention.

It is respectfully submitted that the cited passage from Podszun referenced in the Examiner's Answer actually teaches a range of temperatures for which 50° C is the very bottom of the range and outside the preferable range:

The polymerization process according to the invention is in general carried out in the temperature range from 50° C to 250° C, preferably 60 to 150° C.

Podszun – Col. 3, Lines 52-54.

Moreover, as demonstrated by the only example cited by Podzun, it is respectfully

submitted that a person skilled in the art would understand that operating at the lower end of such a range of polymerization temperatures would necessarily require either (i) longer cure times, or (ii) increased pressures, or (iii) both.

The compositions from Examples 3, 4 and 5 and two comparison materials were polymerized 140° C under 200 bar in the course of 10 minutes to give a test sheet.

Podszun – Col. 24, Lines 3-5 (emphasis added).

Plainly, it is impossible to subject a patient to either temperatures of 140° C or 200 bar pressure during a dental procedure. While a person skilled in the art would understand as that lower temperatures and lower pressures within the range may be used to cure dental prosthetics in a hot water bath, for example, hot water bath cures typically are accomplished over much longer periods of time than 10 minutes, such as overnight curing. For example, Nakazato teaches in the background section an example of hot water flask curing at 70° C that takes between 60 to 120 minutes. (Nakazato, Col. 1, Lines 30-42).

In view of the known relationships among temperature, pressure and time with respect to curing polymer materials, it is respectfully submitted that, contrary to the combination of references proposed by the Examiner based on the hindsight afforded by the teachings of the present invention, a person of ordinary skill would have no expectation of success at combining the cited references in the manner proposed by the Examiner.

With respect to the Examiner's argument that Stevens teaches heating over a range and that pain precautions are known (Examiner's Answer, pg. 6), it is respectfully submitted that a person of ordinary skill in the art would know that healthy dental pulp tissue will suffer necrosis or tissue damage if exposed to temperatures in excess of about 5° C above body temperature. This fact would not be as relevant in the context of Stevens where the

application of microwave energy is being used for the localized purpose of sterilization of a tooth whether the dental pulp has been removed for a root canal. In the context of use of a polymer material for reconstructing a tooth or forming a dental prosthesis, however, the application of energy will occur in the vicinity of healthy teeth where exposure to temperatures above about 43° C (5° C above 37° C normal body temperature) would do damage to healthy living tissue. Consequently, it is respectfully submitted that the combination of Stevens and Podzun teach away from what a person skilled in the art would consider a safe application of microwave energy in an intra-oral context.

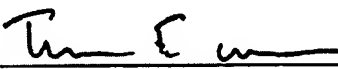
With respect to the Examiner's argument that the temperature range is not expressly recited in the claims (Examiner's Answer, pg. 6), the claims do expressly recite the application of microwave energy to *intra-orally* harden the polymerizable materials.

With respect to the Examiner's argument that Nakazato teaches applying microwave energy to cure dental polymers (Examiner's Answer, pg. 7), it is respectfully submitted that all of the examples described by Nakazato use pressurized curing in a flask within in a microwave oven that is operated at an output of 500 W. (Nakazato, Col. 15, Lines 9-35). Certainly in the context of a pressurized flask placed within a 500 W microwave oven for several minutes (e.g., 3 minutes) and then cooled for 30 minutes in a cold water bath, Nakazato teaches *extra-oral* microwave curing of dental prosthetics. However, it is respectfully submitted that there is nothing in Nakazato which teaches or suggests anything at all about the possible use of microwave energy in an *intra-oral* context and, in fact, the entirety of the examples taught by Nakazato teach exactly the opposite.

(5) CONCLUSION

Appellant submits that claims 1, 33 and 37 are patentable over the obviousness rejection that is the remaining subject of this appeal. Appellant asserts that the Examiner has failed to establish a *prima facie* case of obviousness based on the proposed combination of U.S. Patent No. 5,147,903 (Podszun) in view of U.S. Patent No. 4,873,269 (Nakazato) and U.S. Patent No. 5,421,727 (Stevens). Therefore, Appellant request reversal of the Section 103(a) obviousness rejection of claims 1, 33 and 37 and the remand of this case for further prosecution to permit the applicant to, given the apparent recent abandonment of Stangel et al., now introduce evidence to swear behind Stangel et. al. as the first true and correct inventor of the claimed invention.

Respectfully submitted,  
Dr. Marc Seghatol et al.  
By their attorney

  
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